

What is claimed is:

- 5 *Sub 1* 1. A method for releasing a microstructure for fabricating a device of a micro electro mechanical system (MEMS), comprising the steps of:

supplying alcohol vapor bubbled with anhydrous HF;

maintaining a temperature of the supplying device and a moving path of the anhydrous HF and the alcohol to be higher than a boiling point of the alcohol;

- 10 performing a vapor etching by controlling a temperature and a pressure to be within the vapor region of a phase equilibrium diagram of water; and

removing silicon oxide of a sacrificial layer on a lower portion of the microstructure.

- 15 2. The method of claim 1, wherein the vapor etching is performed under a pressure ranged to be 25-75torr.

- 20 3. The method of claim 1, wherein the vapor etching is performed under a temperature ranged to be 25-80°C.

4. The method of claim 1, wherein a step of performing a wet etching of a part of the silicon oxide precedes the step of performing the vapor etching.

- 25 5. The method of claim 1, wherein the silicon oxide of a sacrificial layer is any one component selected from the

group consisting of TEOS, LTO, PSG, BPSG and a thermal silicon oxide.

5 6. The method of claim 1, wherein the alcohol is any one component selected from the group consisting of methanol, isopropyl alcohol and ethanol.

10 7. The method of claim 1, wherein the MEMS device has a laminated layer structure or a monocrystal silicon structure.

15 8. A method for removing silicon oxide of a sacrificial layer for a microstructure in a MEMS device, characterized by removing the silicon oxide of a sacrificial layer with a vapor etching using anhydrous HF and alcohol by controlling a temperature and a pressure inside of an etching chamber to be within the region of a vapor of a phase equilibrium diagram of water.

20 9. The method of claim 8, wherein the pressure inside of the etching chamber is ranged to be 25-75torr.

25 10. The method of claim 8, wherein the temperature inside of the etching chamber is ranged to be 25-80°C.